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United States Department of the Interior
Fish and Wildlife Service

Fishery Leaflet 65

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AN OUTLET GATE FOR FARM FISH PONDS

Prepared in the Division of Fish Culture

For the successful operation of a fish pond it is important to provide an outlet so that the pond can be completely drained. This will permit the collecting of surplus fish and their removal during renovating and restocking of the pond should that become necessary.

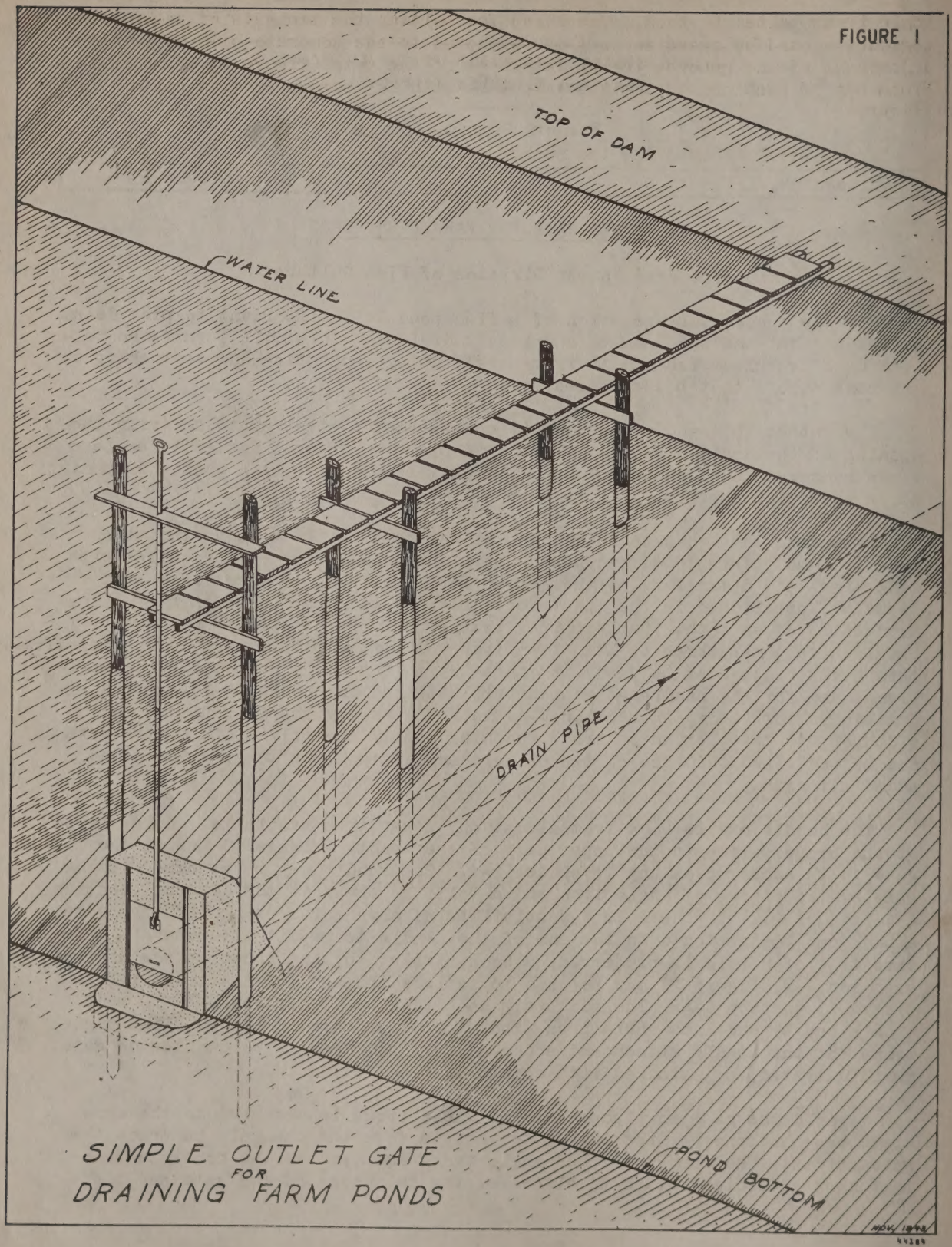
The outlet gate shown in figure I consists of a steel plate covering the opening of the drain pipe. It is held in place by grooves formed by angle irons anchored to a concrete base. The gate is operated by a handle extending above the water surface.

By making some changes in design, it may be possible to construct the gate from materials found around the farm shop. The size of the outlet pipe determines the dimensions of the gate. For pipes four to eight inches in diameter, steel used in the construction of the gate may be as thin as three-sixteenths of an inch. Outlet pipes twelve, or more, inches in diameter should have gates three-eights of an inch, or more, in thickness. If a relatively thin steel plate must be used, it can be strengthened by permitting the angle irons used for the handle attachment (illustrated in section A-A) and the auxiliary hook (shown in section B-B) to reach nearly the full height and width of the gate; or angle irons reaching nearly the full width of the gate can be installed in place of two or more auxiliary hooks to give the gate added strength.

The handle may be made from almost any scrap iron available. Holes bored at the proper place in the upper part of the handle (figure 2) permit the gate to be anchored at any level desired. The handle may be attached to the gate by two pieces of angle iron and a bolt, as shown in the diagram (section A-A, figure 2). If there is a possibility of anyone tampering with the gate, a hook may be fashioned on the end of the handle to permit its removal. If this type of handle is preferred, a hook similar to that shown in the diagram (section B-B, figure 2) may be used to replace the handle attachment illustrated in section A-A. The auxiliary hook (figure 2, section B-B) is made from a one by one-inch angle iron, four inches or more in length. The angle irons for the handle attachment and auxiliary hook may be welded to the gate, as illustrated, or attached with countersunk bolts.

To hold the gate in place a set of angle irons is anchored to the concrete base and another set bolted to them to form the channels in which the gate slides. The flanges of the angle irons anchored to the concrete base must have sufficient width to allow for the thickness of the gate and the

FIGURE 1



SIMPLE OUTLET GATE FOR DRAINING FARM PONDS

angle irons bolted to them. The holes for bolting the two sets of angle irons together should be oversize on those anchored to the concrete base to permit adjustment of the grooves to the thickness of the gate (figure 2). The angle irons may be anchored to the concrete base with lag screws or with bolts (figure 2).

The materials needed for the outlet gate shown in figure 2 are listed:

LIST OF MATERIALS

1	3/8" x 16" x 16"	steel plate.
2	2" x 2" x 34"	angle irons.
2	1" x 1" x 34"	angle irons
2	1" x 1" x 2"	angle irons
1	1" x 1" x 4"	angle iron.
8	2"	anchor plates.
8	3/8" x 5"	bolts.
4 to 8.	3/8" x 1-1/2"	bolts.
1	3/8" x 2-1/2"	bolt for handle attachment.
1	1/4" x 1-1/4"	scrap iron with sufficient length for handle to reach above the water surface.

One cubic yard of concrete should be adequate for construction of the concrete base. The ingredients for a mix of approximately one cubic yard of concrete are six bags of cement; 1/2 cubic yard fine aggregate (sand); 3/4 cubic yard coarse aggregate (gravel or crushed stone), and 27 gallons of water for very wet sand. If the sand and gravel are moist or comparatively dry it may be necessary to increase the amount of water proportionately, from three to six gallons, in order to obtain a workable mixture of dense concrete.

The concrete forms may be removed after 24 hours and the pond filled with water. It is desirable to paint the steel with asphaltum varnish or red lead paint to prevent rusting.

A walkway will be necessary to reach the outlet gate. This may be made removable or it can be enlarged into a permanent fishing platform.

In addition to the outlet gate, it is essential that an overflow, or spillway, be provided for the escape of surplus water. The builder may also desire a catch basin below the impoundment to aid in the recovery of fish when the pond is drained.

Information dealing with the construction, fertilization, stocking and management of farm fish ponds may be obtained from the Fish and Wildlife Service, United States Department of the Interior, at any of the following addresses:

Weatherly Building, Portland 14, Oregon.
Post Office Box 136, Albuquerque, N. M.
Plymouth Building, Minneapolis 2, Minn.
Park Square Building, Boston 16, Mass.
Room 1185, Merchandise Mart, Chicago 54, Ill.

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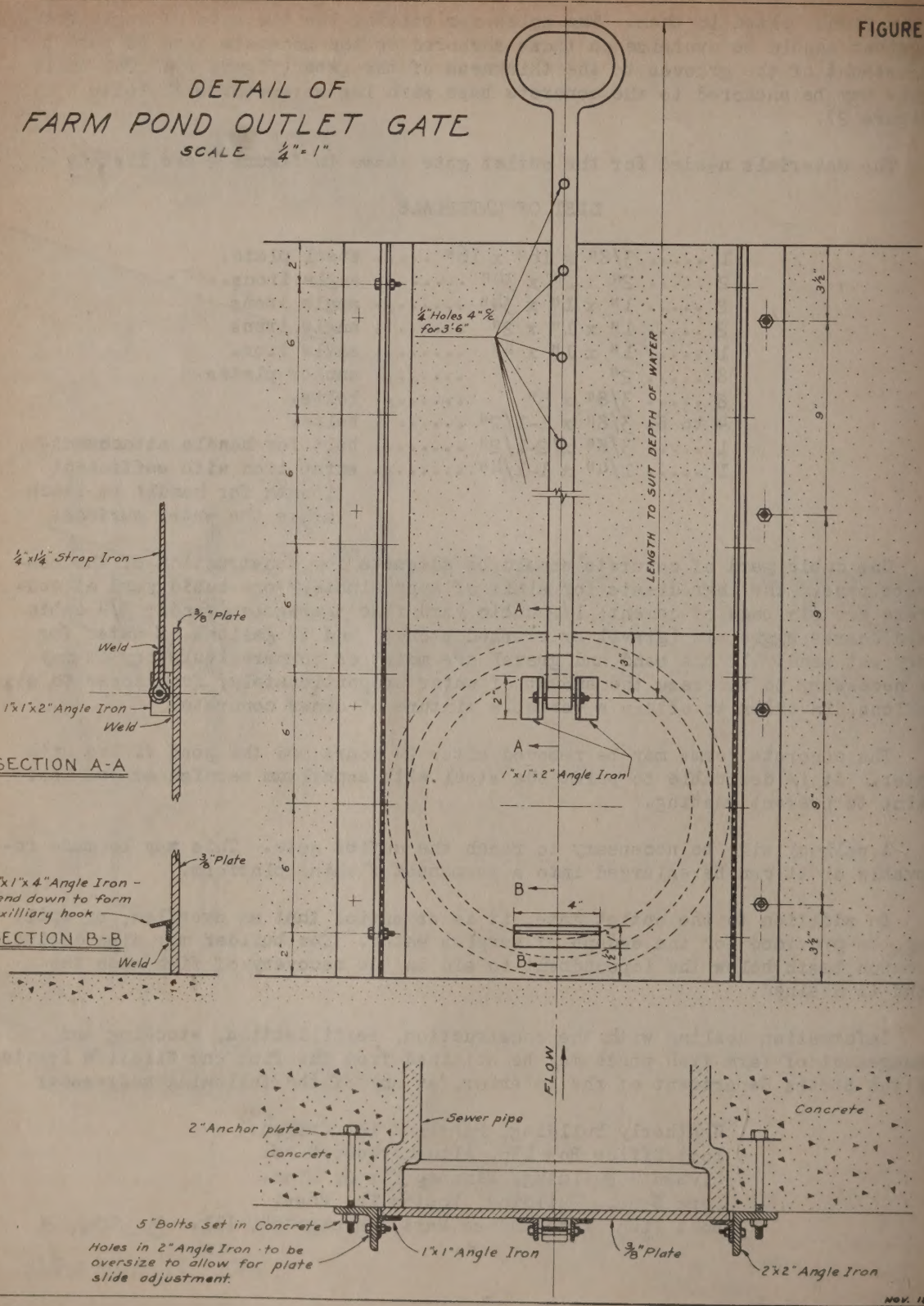
FIGURE 2

DETAIL OF FARM POND OUTLET GATE

SCALE ¼" = 1"



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